What is claimed is:

1. A semiconductor device of an insertion-mount-type comprising:

a plastic package;

a plurality of leads protruding outward from said plastic package;

a semiconductor element protected by said plastic package; and

electric wiring protected by said plastic package to connect said semiconductor elements with said leads, said semiconductor device being to be mounted on an external electric member by inserting said leads into a lead-inserting portion of said external electric member and joining said leads with said lead-inserting portion by solder, wherein

each of said leads includes a first lead portion located at a plastic package side, a second lead portion located at a position closer to a lead tip end than said first lead portion, and a third lead portion located at a position closer to the lead tip end than said second lead portion so as to be inserted into said lead-inserting portion,

the sectional area of said second lead portion is set to a value smaller than that of said first lead portion, and

at least some of said leads are formed as gap-controlling leads provided with gap-controlling means to keep a gap between said semiconductor device and said external electric member constant, said gap-controlling means being located at a position closer to the lead tip end than said second lead portion.

2. The semiconductor device according to claim 1, wherein said gap-controlling means is formed by making the lead width thereof locally larger than the width of said second lead portion.

3. The semiconductor device according to claim 2, wherein said leads are arranged in a line at a side portion of said plastic package, only said leads at both ends of said line being formed as said gap-controlling leads.

4. The semiconductor device according to claim 2, wherein the thickness of said first lead portion is equal to that of said second lead portion, the width of said second lead portion being smaller than that of said first lead portion.

5. The semiconductor device according to claim 2, wherein the sectional area of said second lead portion is equal to that of said third lead portion.

6. The semiconductor device according to claim 2, wherein said gap-controlling means is formed in a shape protruding to both directions along a lead width direction.

7. The semiconductor device according to claim 6, wherein the lead width of said gap-controlling means is equal to that of said first lead portion.

8. The semiconductor device according to claim 7, wherein each of said gap-controlling leads is formed by linearly cutting said lead frame having a wide portion corresponding to said first lead portion, a narrow portion corresponding to said third lead portion, and a tie bar portion which connects said wide portion with said narrow portion and in which two holes are formed, and

both of said holes are located at both sides of a range of said narrow portion along the lead width direction so that said holes are not present in said range, said holes being located on extension lines of both sides of said wide portion.

9. The semiconductor device according to claim 1, wherein said gap-controlling means is formed by forming two or more bent portions on each of said gap-controlling leads.

10. The semiconductor device according to claim 9, wherein said third lead portion is formed in a range in which said first lead portion is formed with respect to a lead width direction, and

a side of said first lead portion and a side of said third lead portion are located on one straight line at one side in the lead width direction.

11. The semiconductor device according to claim 10, wherein each of said gap-controlling leads is formed by linearly cutting said lead frame having a wide portion corresponding to said first lead portion, a narrow portion corresponding to said third lead portion, and a tie bar portion which connects said wide portion with said narrow portion and in which one hole is formed, and

said hole is located so as to include a range of said narrow portion in a lead width direction, said hole being located on an extension line of one side of said wide portion without being located on an extension line of the other side of said wide portion.

12. The semiconductor device according to claim 1, wherein in each of said gap-controlling leads, said second lead portion and said gap-controlling means are formed by forming a hole on said lead at a position closer to a tip end than said first lead portion.

13. The semiconductor device according to claim 12, wherein one side of said first lead portion and one side of said second lead portion is located on one straight line, while the other side of said first lead portion and the other side of said second lead portion is located on another straight line.

14. The semiconductor device according to claim 13, wherein each of said gap-controlling leads is formed by

linearly cutting said lead frame having a wide portion corresponding to said first lead portion, a narrow portion corresponding to said third lead portion, and a tie bar portion which connects said wide portion with said narrow portion and in which one hole is formed, and

said hole is located so as to include a range of said narrow portion in a lead width direction without being located on extension lines of both sides of said wide portion.

15. The semiconductor device according to claim 8, wherein each of said holes is a rectangular hole in which two opposite sides are parallel with the lead width direction or lead extending direction.

16. The semiconductor device according to claim 11, wherein said hole is a rectangular hole in which two opposite sides are parallel with the lead width direction or lead extending direction.

17. The semiconductor device according to claim 14, wherein said hole is a rectangular hole in which two opposite sides are parallel with a lead width direction or lead extending direction.

18. The semiconductor device according to claim 2, wherein each of said gap-controlling leads is formed by linearly cutting said lead frame having a wide portion corresponding to said first lead portion, a narrow portion

corresponding to said third lead portion, and a tie bar portion which connects said wide portion with said narrow portion and in which two cutoff are formed at a position closer to said narrow portion, and

said cutoffs are located at both sides of a range of said narrow portion in a lead width direction, said cutoffs being located on extension lines of both sides of said wide portion so as to be previously provided with said gap-controlling means.

19. The semiconductor device according to claim 1, wherein each of said leads is coated with solder using tin as a base material without containing lead.

20. A semiconductor assembly module comprising:

an external electric member; and

a semiconductor device according to claim 1 inserted into and mounted on said external electric member by solder.